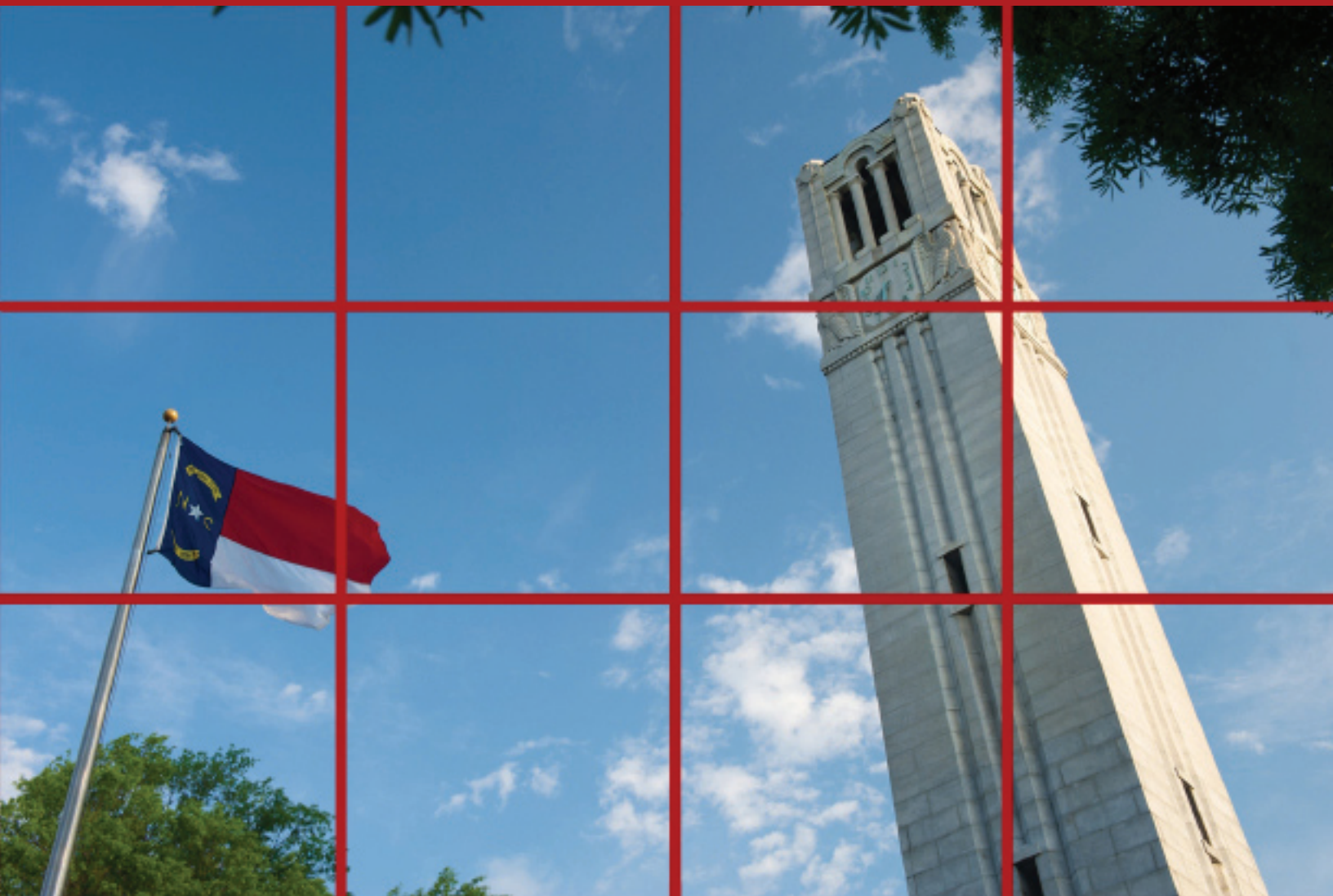


NC STATE UNIVERSITY

2008  
Greenhouse Gas  
Inventory



# EXECUTIVE SUMMARY

UNDERSTANDING OUR IMPACT ON THE ENVIRONMENT AT NC STATE UNIVERSITY

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## BACKGROUND

Many students, faculty and staff at NC State University are minimizing our impact on the environment. In recognizing this contribution Chancellor Oblinger signed the American College and University Presidents Climate Commitment (ACUPCC), which requires the development of a Greenhouse Gas (GHG) inventory and a Climate Action Plan. This report is the first step in meeting the University's commitment to the ACUPCC and an item that was identified in NC State University's 2007 – 2008 Sustainability Report. This report utilizes the World Resources Institute's GHG Accounting Principles as described in the Inventory Methodology section of this report and The Climate Registry's Protocols.

## BOUNDARIES

NC State University is comprised of three main campuses and over 100 satellite offices which amounts to over fifteen million square feet with a population of over 39,900. This inventory includes the three main campuses (Main, Centennial, and Centennial Biomedical) as well as satellite offices for which NC State University manages the utility accounts. The other satellite offices not included in this report have their utility accounts managed by another unit and are a joint endeavor between NC State University and North Carolina Agricultural and Technical State University.

## SCOPE

Greenhouse Gases are described in scopes. Scope I is from direct emissions from the institution. Scope II emissions are from purchased utilities, and Scope III emissions are indirect emissions from the institution.



## TIME FRAME

Scopes I and II emissions are based on the calendar year (CY) 2008 for the possible implementation of Federal or State requirements. Scope III emissions are based on fiscal year (FY) 2007 – 2008, since most University departments track their records on the fiscal calendar.

## METHODOLOGY

The calculations are based on The Climate Registry, Clean Air Cool Planet's Campus Carbon Calculator version 6 and Atmosfair's website for air travel.

## RESULTS

Figure No. 1 (below) and Figure No. 2 on the next page illustrates the 2008 GHG emissions for NC State University. The majority of GHG emissions from the University are from electrical consumption, natural gas usage, and commuting. Scope I emissions account for 32% of the total and Scope II comprise 53% of the total emissions.

## PEER COMPARISON

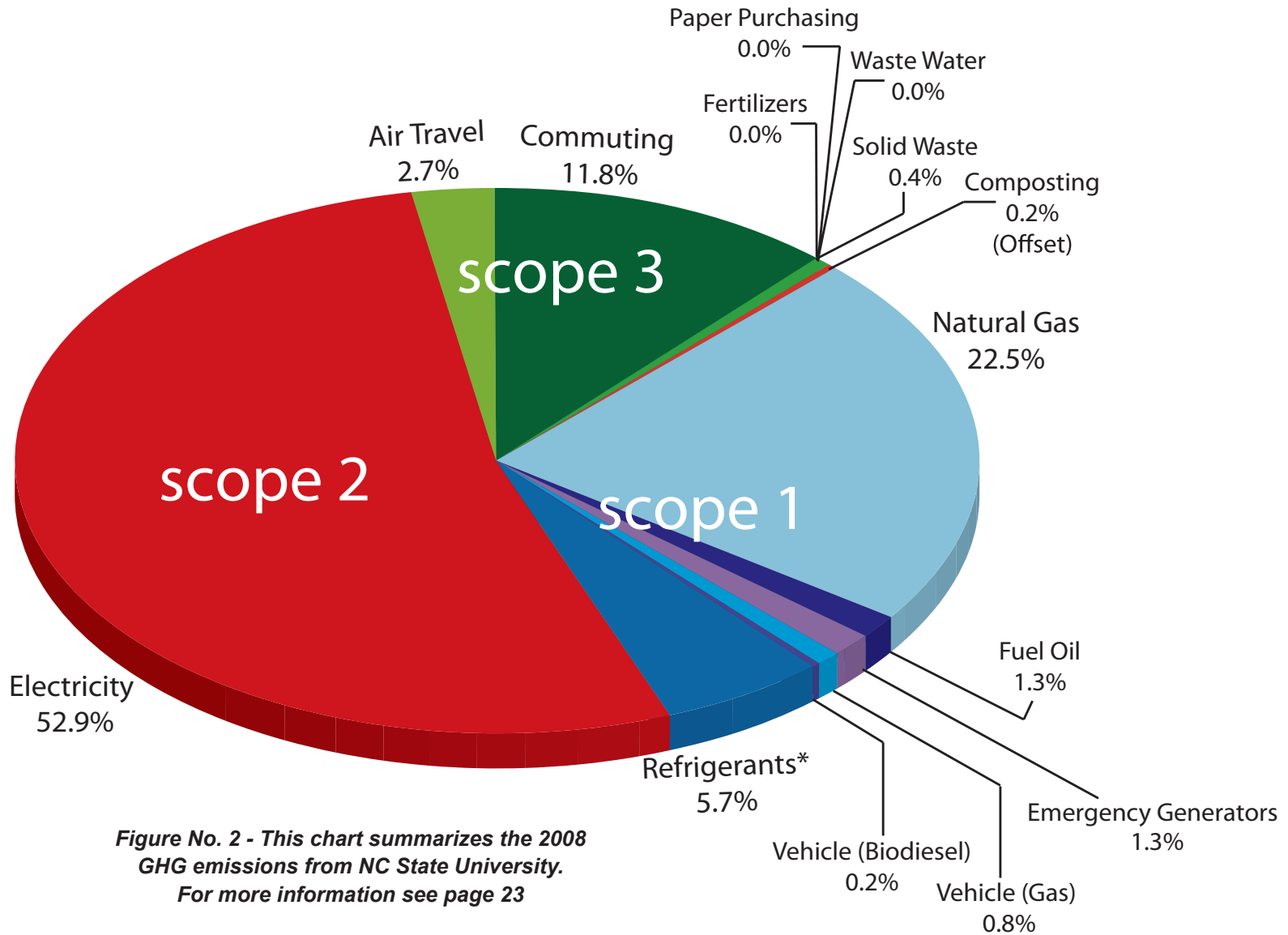
In comparison to the University of Maryland, University of Florida and Harvard GHG emissions, these percentages are comparable to their Scope I emissions ranging from 27 to 32% and Scope II emissions ranging from 40 to 51%.

2008 GHG INVENTORY SUMMARY			
SCOPE	SOURCE	EMISSIONS (MTeCO2)	EMISSIONS (%)
SCOPE 1	NATURAL GAS	60,956	22.57%
	REFRIGERANTS*	15,500	5.74%
	EMERGENCY GENERATORS	3,631	1.34%
	FUEL OIL	3,533	1.31%
	VEHICLE (GAS)	2,249	0.83%
	VEHICLE (BIODIESEL)	580	0.21%
	FERTILIZERS	11	0.00%
SCOPE 2	ELECTRICITY	143,494	53.13%
SCOPE 3	COMMUTING	32,060	11.87%
	AIR TRAVEL	7,330	2.71%
	SOLID WASTE	1,194	0.44%
	WASTEWATER	95.3	0.04%
	PAPER PURCHASING	1	0.001%
OFFSETS	COMPOSTING	(568)	-0.21%
TOTAL		270,069	100.00%

**Figure No. 1 - This chart summarizes the 2008 GHG emissions from NC State University. For more information see page 23.**

# Greenhouse Gas Emissions - 2008

North Carolina State University



## GROWTH

Currently the campus enrollment is projected to grow from 32,382 in 2008 to 38,000 by 2020. To meet this increase in population the campus' building area will need to increase at a proportionate rate. This increase in student population is estimated to increase NC State University's GHG emissions by approximately 15% at today's current trends.

## CURRENT PROGRAMS

Currently, NC State University is proposing a project to reduce its GHG emissions by producing electricity on campus, which is proposed in NC State Legislature Senate Bill 629. This project would install two 5.5 MW combustion turbines with heat recovery steam generators, which would reduce the campus' GHG emissions by approximately 33,000 MTeCO<sub>2</sub> or by 12%.

## FUTURE INVENTORIES

The following are recommendations for improving the accuracy of the GHG Inventory:

- The commuting emissions are based on one survey of students, faculty, and staff. In future inventories, it is recommended to develop comprehensive commuting surveys that are taken monthly to improve the accuracy and sensitivity of the commuting habits of the campus population.
- This inventory did not include the GHG emissions from purchased products. It is recommended for future inventories to include items purchased from the University's purchasing departments which would help develop guidelines to reduce GHG from purchased products.

- The only offset included in this inventory is for composting. Future reports should include offsets from the University's forested land.

## NEXT STEPS

As required by the ACUPCC, the University is planning to develop a Climate Action Plan, which will be guided by the University's Campus Environmental Sustainability Team and contributions by academic students, faculty, and staff. NC State University's Energy Management Office plans to develop annual tactical plans and an overall Energy Strategic Plan with a focus on reducing energy consumption as well as Greenhouse Gases. The Facilities Operations Department will create emissions trends and reporting.





# CONTACT US



If you have questions, concerns, or suggestions pertaining to this publication or future reports on our GHG emissions, please let us know.

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Find more information about this report here:  
<http://www.ncsu.edu/sustainability/ghginventory.php>

Get involved in helping to reduce our climate impact:  
[http://www.ncsu.edu/sustainability/climate\\_impact.php](http://www.ncsu.edu/sustainability/climate_impact.php)

Submit Questions and Solutions:  
E-Mail: [climate\\_impact@ncsu.edu](mailto:climate_impact@ncsu.edu)





#### ELECTRONIC AVAILABILITY

This document is available online at [ncsu.edu/sustainability/ghginventory.php](https://ncsu.edu/sustainability/ghginventory.php). We printed minimal copies of this inventory to minimize the GHG emissions associated with its publication. Please consider the impact of printing before doing so.

#### FEEDBACK

We encourage readers of this inventory to provide us with their own insight into how we manage our GHG emissions for carbon neutrality. Please provide your insight to the university at [ncsu.edu/sustainability/climate\\_impact.php](https://ncsu.edu/sustainability/climate_impact.php)

#### EQUAL OPPORTUNITY STATEMENT

NC State University is dedicated to equality of opportunity. The university does not condone discrimination against students, employees or applicants in any form. NC State University commits itself to positive action to secure equal opportunity regardless of race, color, creed, national origin, religion, sex, age or disability. In addition, NC State University welcomes all persons without regard to sexual orientation.